We Claim:

1. A blood separation assembly comprising

a frame rotatable about a rotational axis, the frame having walls that define an open interior space through which the rotational axis passes,

a drive mechanism coupled to the frame to rotate the frame about the rotational axis,

a rotor carried by the frame within the open interior space for relative rotation about the rotational axis,

a blood processing chamber secured to the rotor comprising a base including formed walls that define a separation channel, the blood processing chamber being rotatable with the rotor about the rotational axis,

an umbilicus having a far end region coupled at a non-rotating junction to the blood processing chamber along the rotational axis, the umbilicus also including a near end region opposite to the far end region and a mid region between the far and near end regions,

a mount aligned with the rotational axis outside the frame for holding the near end region of the umbilicus in a non-rotating and stationary position opposite to the far end region, the mid region of the umbilicus being bowed outside the rotational axis between the near and far end regions,

a first umbilicus support surface on the frame that engages the mid region of the umbilicus, and

a second umbilicus support surface on the frame spaced from the first umbilicus support surface in a direction toward the mount, the second umbilicus support surface engaging the umbilicus and guiding the near end region of the umbilicus toward the mount, the first and second umbilicus support surfaces imparting rotation to the

mid portion of the umbilicus in response to rotation of the frame about the rotational axis, rotation of the umbilicus imparting rotation to the blood processing chamber secured to the rotor, the first and second umbilicus support surfaces inhibiting travel of the umbilicus in radial directions toward and away from the rotational axis.

2. An assembly according to claim 1

wherein at least one of the first and second umbilicus support surfaces includes a low friction material.

3. An assembly according to claim 2

wherein the low friction material includes polytetrafluoroethylene.

4. An assembly according to claim 2

wherein the low friction material includes ultra high molecular weight polyethylene.

5. An assembly according to claim 1

wherein the first and second umbilicus support surfaces include a low friction material.

6. An assembly according to claim 5

wherein the low friction material includes polytetrafluoroethylene.

7. An assembly according to claim 5

wherein the low friction material includes ultra high molecular weight polyethylene.

8. An assembly according to claim 1

wherein the umbilicus comprises an interior comprising a first material and an exterior comprising a second material different than the first material.

9. An assembly according to claim 1

wherein the umbilicus comprises an interior comprising a first material and a coextruded exterior comprising a second material different than the first material.

10. An assembly according to claim 1

wherein the near end region carries a sheath.

11. An assembly according to claim 1

wherein the far end region carries a mount coupled to the blood processing chamber at the non-rotating junction.

12. An assembly according to claim 1

wherein the umbilicus comprises an interior comprising a first material and an exterior comprising a second material different than the first material, and

wherein the near end region carries a sheath fabricated from a material that is compatible with the second material.

13. An assembly according to claim 1

wherein the umbilicus comprises an interior comprising a first material and an exterior comprising a second material different than the first material, and

wherein the far end region carries a mount fabricated from a material that is compatible with the second material, the mount being coupled to the blood processing chamber at the non-rotating junction.

13. An assembly according to claim 1

wherein the blood processing chamber comprises a molded base assembly defining a hub about which the separation channel circumferentially extends, and at least one radial passage that directs fluid between the hub and the separation channel, the hub being further formed to define the non-rotating junction with the fear end of the umbilicus to convey blood to and from the separation channel through the hub.

14. An assembly according to claim 1

wherein the rotor includes a latching assembly to enable removable engagement of the blood processing chamber to the rotor.

15. A blood processing system comprising

a blood processing assembly including a centrifugal blood processing chamber, an umbilicus having a far end region coupled in a non-rotating junction to the blood processing chamber along the rotational axis, the umbilicus further including a near end region opposite to the far end region, and a mid region between the far and near end regions, a blood collection tube extending from the near end of the umbilicus, a fixture coupled to the near end of the umbilicus to hold the blood collection tube in a desired orientation, and

a blood processing device comprising

an optical sensing assembly,

a centrifugal separation station comprising a yoke rotatable about a rotational axis, the yoke having walls that define an open interior space through which the rotational axis passes, a drive mechanism coupled to the yoke to rotate the yoke about the rotational axis, a rotor carried by the frame within the open interior space for relative rotation about the rotational axis, the rotor including a latching assembly to releasably engage the centrifugal blood processing chamber for rotation with the rotor,

a pocket formed adjacent the blood separation station outside the yoke defining a mount aligned with the rotational axis for releasably holding the near end region of the umbilicus in a non-rotating and stationary position at a location opposite to the far end region, the mid region of the umbilicus being bowed outside the rotational axis between the near and far end regions, the pocket also including a holder to releasably receive the fixture when the near end region of the umbilicus is loaded into the mount, the holder locating the component collection tube in association with an optical sensing assembly mounted on the frame, and

at least one umbilicus support surface on the yoke that engages the bowed mid region of the umbilicus, the support surfaces imparting rotation to the mid portion of the umbilicus in response to rotation of the yoke about the rotational axis, the rotation of the umbilicus imparting rotation to the blood processing chamber secured to the rotor.

16. A system according to claim 15

wherein the umbilicus support surface includes a first umbilicus support surface on the yoke that engages the bowed mid region of the umbilicus, and a second umbilicus support surface on the yoke spaced from the first umbilicus support surface in a direction toward the mount, the first and second umbilicus support surfaces inhibiting travel of the umbilicus in radial directions toward and away from the rotational axis.

17. An assembly according to claim 15

wherein the at least one umbilicus support surface includes a low friction material.

18. An assembly according to claim 17

wherein the low friction material includes polytetrafluoroethylene.

19. An assembly according to claim 17

wherein the low friction material includes ultra high molecular weight polyethylene.